CLAIMS

WHAT IS CLAIMED IS:

1. A content-addressable memory comprising:

a storage section having a plurality of storage areas for storing therein a plurality of pieces of information, the storage areas having respective priority ranks assigned thereto;

an ancillary storage section having a plurality of ancillary storage areas for storing therein the priority ranks, the plurality of ancillary storage areas being associated with the plurality of storage areas, respectively; and

a controlling section for outputting, when at least one of the storage areas stores therein information matching with a word supplied from an exterior, pointer(s) of all or part of the at least one of the storage areas in descending order of priority ranks that are stored in ancillary storage area(s) associated with the at least one of the storage areas.

2. The content-addressable memory according to claim 1, further comprising

a priority setting section for creating sequential priority ranks in order in which the plurality of pieces of information are stored in the plurality of storage areas, and for storing the created priority ranks in ancillary storage areas associated with the storage areas, respectively.

3. The content-addressable memory according to claim 1, wherein

the storage section is supplied in serial with the plurality of pieces of information from an exterior, and stores the supplied pieces of information in the plurality of storage areas in sequence.

4. The content-addressable memory according to claim 1, wherein

the ancillary storage section is supplied in serial with the priority ranks assigned to the storage areas, and stores the supplied priority ranks in the plurality of ancillary storage areas in sequence.

5. The content-addressable memory according to claim 1, further comprising

a priority converting section for converting the priority ranks stored in the ancillary storage areas into unique priority ranks indicating an order in which the plurality of pieces of information are to match with a common word supplied from an exterior.

6. The content-addressable memory according to claim 3, further comprising

a priority converting section for converting the priority ranks stored in the ancillary storage areas into unique priority ranks indicating an order in which the plurality of pieces of information are to match with a common word supplied from an exterior.

7. The content-addressable memory according to claim 4, further comprising

a priority converting section for converting the priority ranks stored in the ancillary storage areas into unique priority ranks indicating an order in which the plurality of pieces of information are to match with a common word supplied from an exterior.

8. The content-addressable memory according to claim 5, wherein:

each of the priority ranks contains ancillary control information indicating a condition to be satisfied between the stored information in the plurality of storage areas and pointers of the storage areas; and

the priority converting section converts each of the priority ranks stored in the ancillary storage areas into a priority rank which satisfies the condition contained in the ancillary control information.

9. The content-addressable memory according to claim 6, wherein:

each of the priority ranks contains ancillary control information indicating a condition to be satisfied between the stored information in the plurality of storage areas and pointers of the storage areas; and

the priority converting section converts each of the priority ranks stored in the ancillary storage areas into a priority rank which satisfies the condition contained in the

ancillary control information.

10. The content-addressable memory according to claim 7, wherein:

each of the priority ranks contains ancillary control information indicating a condition to be satisfied between the stored information in the plurality of storage areas and pointers of the storage areas; and

the priority converting section converts each of the priority ranks stored in the ancillary storage areas into a priority rank which satisfies the condition contained in the ancillary control information.

11. The content-addressable memory according to claim 1, wherein

the plurality of storage areas and the plurality of ancillary storage areas are a set of common storage areas in each of which a single piece of information and a priority rank are stored in a pack, the single piece of information and the priority rank being associated with each other.

12. The content-addressable memory according to claim 11, wherein

each of the common storage areas is a set of partial storage areas to which data is written individually.

13. The content-addressable memory according to claim 1, wherein:

control information is appended to each of the priority ranks stored in the plurality of ancillary storage areas, the control information indicating a processing which the controlling section is to perform; and

the controlling section determines which one of the ancillary storage areas is associated with one of the storage areas which stores therein information matching with the word supplied from an exterior, and performs a processing indicated by control information which is stored in the determined ancillary storage area.

14. The content-addressable memory according to claim 13, wherein

the control information contains at least one of a criterion, the number of pointers to be output, and a type of the pointers, the criterion being for judging whether the stored information in the plurality of storage areas match with the word supplied from the exterior.